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Integrating the cloud into teleport services

As the worlds of teleport operations and cloud services collide, Keith Frost, Media and Data Networks Director for Satellite & Media at Arqiva, discusses the forces driving increased demand for cloud capabilities, the requirements for cloud provision and the competitive advantages to gain within the satellite sector.

Teleports have always been in the business of creating and managing capacity – of networks, of transmission systems, of analogue and digital processing – for shared use by their customers. At the same time, the global cloud services market of shared storage, processing and applications is expected to reach US$555 billion by 2020, growing at an annual rate of 17.6 percent.

As these two worlds collide, cloud services are on the verge of becoming a staple in modern teleport operations – whether for providing owned cloud infrastructure or incorporating third party offerings into existing stacks.

But what's driving demand for cloud capabilities within the teleport sector, what are the provisional requirements, and what are broadcasters set to gain from integrating such services into their businesses?

Driving demand

Within today's teleport industry, there is a clear and pressing demand to solve a host of existing customer challenges and simplify an increasingly complex broadcast environment.

Audiences are watching (and demanding) content anytime, anywhere and on any device. Meanwhile, advanced analytics are shedding more light than ever before on consumer interests and viewing habits, revealing a multitude of preferences that broadcasters must pander to in order to gain and retain eyeballs.

Add to this the increasing pressure to monetise content – be it across regions, audiences or platforms – as well as the new age battle between legacy broadcasters and



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emerging market disrupters, and the long line of hurdles facing the industry becomes starkly apparent.

As they seek solutions to these challenges, broadcasters are calling for increasing agility and flexibility – both commercially and operationally – in order to clear their path to success. Virtualised capabilities, such as public and private cloud services, offer one solve – presenting cost-effective solutions to help broadcasters monetise content and reduce the cost of delivery.

Cloud considerations

Whether hosted privately or provisioned publicly via a third party (i.e. Amazon Web Services), there are a variety of technical, financial and operational requirements and considerations that broadcasters must take into account before they can realise the benefits of virtualised services.

Technical talk

Technically speaking, one of the biggest (and arguably most topical) considerations is around security. Processing video in the cloud opens both the platform and the content to increased vulnerability. Without adequate security measures, third parties could use your distribution chain to interrupt your content, inject their own into your feed, or pirate your content – all of which are costly scenarios given your investment and the impact any would have on your ability to monetise that content.

Effective service orchestration is another important technical consideration. Establishing an orchestration that enables you to create (and replicate) workflows quickly and



accurately will set your service up for repeated success.

Additionally, service quality and reliability must be a priority. The traditional broadcast industry has grown up with a set of incredibly reliable standards. Audiences have (rightly) come to expect zero downtime and a consistently high-quality viewing experience. As the industry moves traditional services (currently delivered via bespoke hardware) to the cloud, this brings a number of challenges associated with operating in an environment alongside a host of non-broadcast services.

Network capacity is no longer solely dedicated to your workflow, and the risk of losing sight of information (i.e. picture bits) or having your stream deprioritised increases – in turn affecting the feed quality and viewer experience. To avoid such eventualities and maintain service excellence, standards such as Forward Error Correction (FEC) – that ensure missing information can be identified and auto-completed – are a must for any broadcaster moving its teleport services to the cloud.

Operational impact

From an operational perspective, the most critical considerations pertain to the skills required for success. In order to work effectively streams must bring together traditional 'hard' broadcast engineering skills with the newer 'soft' IT and application skills required to manage cloud environments. This typically necessitates either obtaining new staff or up-skilling existing employees.

Ensuring you have the right processes in place to manage the integration of cloud services into your existing stack (or as standalone) and handle bandwidth requirements are additional factors to consider.

Financial flexibility

Financially, the most important cloud considerations revolve around changing business models. To date, the traditional broadcast model has run on fixed contracts of 3-5 years, typically involving costly reengineering and up-front outlays, and with a distinct lack of flexibility to change workflows throughout the course of the deal.

The shift to common compute power in the cloud means broadcasters now have the flexibility to amend workflows, manipulate content in different ways, and drive real value via effectively monetised content. Without steep initial outlays, broadcasters can afford to buy and change their approach as they go – and new business models are emerging as a result, offering greater agility and flexibility via short-term contracts, or even pay-as-you-go (PAYG) options.

That said, it's important to be aware of the cost implications of the cloud environments on offer. When working within a public cloud domain, for example, you only pay for what you use, whereas in a private environment (i.e. using a third-party data centre) the costs are continuous. The third option is developing your own in-house cloud environment (i.e. building and running an on-site data centre) offering greater control – but the return on investment (ROI) is only justifiable if you have continually high capacity and demand for process, storage and compute power.

Competitive advantage

Regardless of whether cloud and virtualised services are provided publicly, privately or in-house, there are significant benefits to gain for teleport operators who do so successfully:

1. **Faster communication –** Moving infrastructure to all IP interconnectivity means you establish a common communication standard across your entire workflow, making it easier to link processes together. By using software to create workflows rather than having to reconfigure hardware, you're able to communicate much faster and automate key functions for continual gain.
2. **Automated workflows –** Delivery automation and orchestration across appliance and cloud platform means you don't need a large team of engineers to build new services (as is required in the traditional hardware-based broadcast domain). Once you've created one workflow, you can quickly, easily and automatically amend or create a new via a template approach – the whole chain works much better together.
3. **Flex and scale –** Moving beyond co-location infrastructure to IT services takes away the challenges associated with the traditional, bespoke broadcast kit (i.e. hardware costs/configuration and rigidity). Instead, transitioning your supply chain to become applications-based using common IT infrastructure allows for a much more flexible approach and delivers all the cost benefits and economies of scale that you'd expect.
4. **Adaptability –** Re-programmability of workflows ensures the continued service flexibility and agility that broadcasters are seeking in order to keep up with the ever-changing market needs outlined at the beginning of this article. In the software domain, it's much easier to re-programme in code new functionalities, test and apply into live workflows than ever before.

Conclusion

While considerations seem numerous, there is notable competitive advantage to be gained by those to get it right. Being both a teleport and an 'Internet-ready' cloud provider is set to bring the best of both worlds together for the future of teleport services – blending the targeted benefits of cloud, and one-to-many capabilities of satellite into a unified proposition for the market. ■

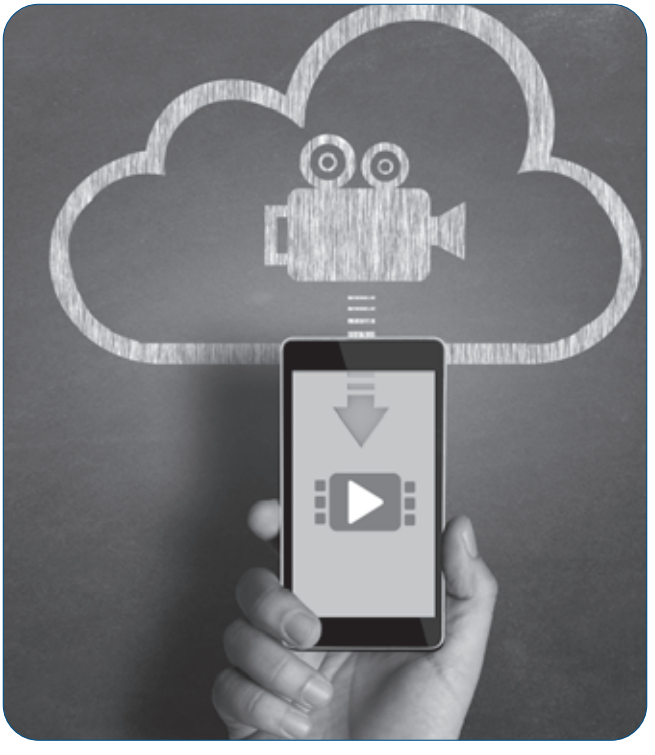


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